AUDIT98

Indian Health Diabetes Chart Audit for
Quality Assurance and Quality Improvement

Contents

Indian Health Service
Diabetes Program

March, 1998

Preface

Diabetes remains at epidemic levels in nearly all Native American communities. It continues to be one of the most significant health problems facing American Indians and Alaska Natives (AI/AN) today. Recently there has been increased national attention and funding related to diabetes, including a five year, $150 million dollar grant program for the prevention and treatment of diabetes in Native Americans. The grant program gets under way this year. As a consequence, there is more interest than ever before in looking at the diabetes care provided by IHS, Tribal, and Urban (I/T/U) programs. Your participation in the assessment process described on these pages will benefit your facility and will also contribute to the data pool that permits establishment, refinement, and trend analysis of national Indian Health norms for the various diabetes related measures. Ultimately, improving patients' lives through the provision of quality diabetes care is the bottom-line goal of the chart review process. So, with that in mind, welcome to AUDIT98!

If you are already familiar with the IHS Diabetes Chart Audit process, the information below gives you a brief summary of this year's changes followed by quick start directions.

If you have not previously participated in the annual Diabetes Audit, ***please take time to read carefully through Sections I - IX before beginning your audit activities.***

What's new in AUDIT98?

✔**New items:** A number of new elements were added to the 1998 chart review:

- For patients who are current tobacco users, did cessation counseling efforts occur?
- Date of last EKG (to examine the interval since the last exam was performed).
- A second HbA1c result and the dates the HbA1c tests were done (to help determine how frequently HbA1c testing is being done).
- LDL Cholesterol (most recent result in the past 12 months).
- Whether self monitoring of blood glucose is documented.

✔**Optional items:** Although AUDIT97 had 9 optional items, there is only a single optional item on AUDIT98. It asks whether the patient is participating in Staged Diabetes Management (SDM), and is appropriate for use *only at those sites where SDM training has occurred.*

✔**Deleted items:** In order to add the new items listed above and still maintain efficiency, a number of "old" items were temporarily excluded from review. This year's deleted elements include:

Flowsheet use	Breast exam	Rectal Exam
Height in obvious location	Mammogram	BP taken at every visit
Weight recorded every visit	Pap smear	Blood sugar each visit

These items continue to be important and may appear on future audits!

✔ **DM Therapy**: Troglitazone (Rezulin) was added as one of the choices. For patients taking multiple diabetes medications, the format for this item continues to permit selection of *all* therapies that currently apply.

Quick Start Directions:

[More detailed instructions for the steps are available on the pages referred to in parentheses]

1. Check with your Area diabetes consultant to see if an Area-wide Local Option Question has been developed. If a local option question will be used, print it onto the audit form. (Refer to pg 12).

2. Select in random fashion the appropriate number of charts to review (pg 7-8).

3. **Review the audit form, definitions and criteria with all chart reviewers (pg 9-11).**

4. Perform the chart audit.

[If an IBM-compatible computer (PC) is available to you, you wish to may proceed through steps 5-10 . The computer must contain the Epi Info software program, version 6.0 or higher.]

5. Load the AUDIT98.* and other files from the accompanying diskette to the computer subdirectory that contains Epi Info, usually \EPI6 (refer to pg 14, step 1).

6. Enter the audit data into the AUDIT98.REC file, by going to Epi Info's E**N**TER Program and typing in **AUDIT98** when prompted for the name of the .REC file (pg 12, steps 3-4).

7. Check the data file (AUDIT98.REC) for inadvertent data entry errors (pg 15, section X)

8. If a Local Option question was used, modify the report file to correctly display the results. This is done by making changes to the AUDIT98.RPT file (pg 12, bottom half).

9. Print out a summary report by entering Epi's **A**NALYSIS program, typing **READ AUDIT98**, pressing **<F5>**to send the report to your printer, and then typing **RUN AUDIT98** (pg 15, section XI).

10. A supplemental Renal Preservation Report also can be printed in a similar fashion: begin at Epi's main menu, enter the **A**NALYSIS program, type **READ AUDIT98**, press **<F5>** to send the report to your printer, then type **RUN RENAL98** (pg 16, section XII).

11. Forward a copy of your data file (.REC file) to your Area Diabetes Consultant.

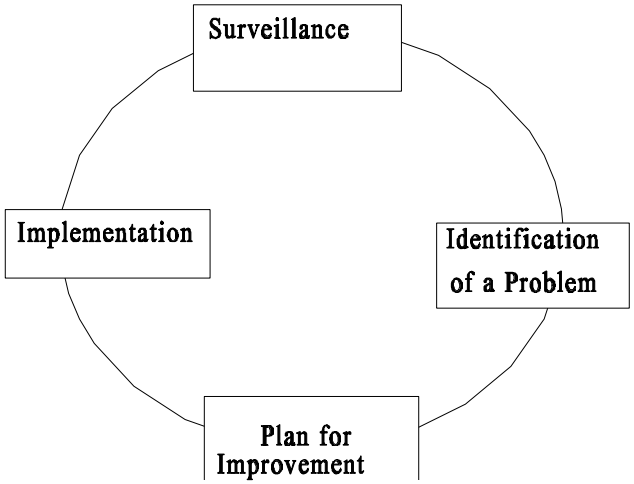
Instructions for
Assessment of Diabetes Care and Health Status
FY 1998

I. Introduction

The instructions that follow describe a standardized method for assessing the diabetes care and the health status of diabetes patients at your facility. Using a uniform process and standardized definitions provides consistency as you monitor patient care patterns over time. It allows valid comparison of your facility with other I/T/U facilities. During the chart audit, diabetes care is compared to the *IHS Standards of Care for Patients with Diabetes* (see attached copy). Instructions for sample size calculations, selecting charts for the audit, and standard definitions for each item are given on the next few pages. Additional assistance, if necessary, can be obtained from your Area Diabetes Consultant.

II. Chart Audits for Quality Assessment and Improvement Activities

For any facility to provide quality diabetes care, on-going self-assessment and improvement activities are necessary. A number of techniques or methods to pursue improvement may be employed. A central feature of each of these systems is some form of an improvement cycle:



With respect to diabetes, the basic questions to be answered are straightforward: "Are we doing those things that we agreed were important for maximizing the health of our patients with diabetes?" and "Are there ways that we could do better?" Getting accurate and reliable answers is more complex, of course, but the diabetes audit program is designed to make it easier to do just that.

The IHS Diabetes Program recommends annual or more frequent medical record review to monitor care patterns and changes over time at your facility. You should select in a random manner a large enough sample of medical records so that you can be reasonably certain that observed changes are significant and not just due to chance (see sections IV and V). All of the indicators on the audit form, which reflect compliance with the *Standards of Care for Patients with Diabetes*, should be completed as outlined in section VI.

The staff at your facility may be asked to participate in the audit process. While this process may seem tedious at first, many providers have found that participating in the chart audit provides a review of the standards of care for diabetes and identifies trends in diabetes care at their facility. Through the audit, the providers often have a better idea of what changes they can make to improve the outcome for people who suffer from this potentially devastating disease.

Once the audit is complete, the data may be entered into the Epi Info program, from which you can easily print a summary report. The report shows the percentage of charts which have documentation of compliance with each of the indicators. Your Area Diabetes Consultant can assist you in obtaining reports and comparison data. In addition, your Area Diabetes Consultant can assist you in identifying program strengths and deficiencies. Facilities are encouraged to review the findings and recommendations in a team setting, establish priorities together, and develop an action plan with a timetable for re-evaluation.

III. Using the Diabetes Chart Audits to Meet JCAHO/AAAHC Requirements

The health care environment continues to evolve rapidly, both within and outside of IHS. In keeping with these changes, both the Joint Commission on Accreditation of Healthcare Organizations (JCAHO) and Accreditation Association for Ambulatory Health Care (AAAHC) are emphasizing patient centered, performance based evaluations. Health centers are asked to demonstrate the efficacy and appropriateness of the care they provide. JCAHO and AAAHC both seek to determine whether a health facility is *actually* carrying out those functions that reasonably can be expected to improve the health of the patients they serve.

If JCAHO or AAAHC accreditation is important to your facility, you will be pleased to find that the diabetes audit process described here can serve as an excellent example of the type of performance oriented clinical self-assessment and improvement activity that these organizations are looking for. The diabetes audit is based on consensus-derived standards of care. These standards are reviewed regularly and then widely disseminated. The audit looks at your facility's actual performance on a number of key processes that are known to (or considered likely to) improve the health of people with diabetes. Outcome measures, such as blood pressure control and glycemic control, are also monitored. Because the diabetes audit is designed to be performed on a regular basis, it can be extremely useful in documenting performance trends that JCAHO and AAAHC find of interest. Additionally, when the diabetes audit results are routinely incorporated into multidisciplinary diabetes care planning activities, they provide a clear illustration of interdepartmental coordination to improve patient care.

Table I - Sample Size Calculations (see next page for explanation)

Sample size needed to be 90% or 95% certain that the rate you find is within 10% or within 5% of the true rate, for populations up to 2000.

Population	90% Certainty		95% Certainty	
(#of **DM** Patients)	Within **10%**	Within **5%**	Within **10%**	Within **5%**
<30	all	all	all	all
30	21	27	23	28
40	25	35	28	36
50	29	42	33	44
60	32	49	37	52
70	34	56	40	59
80	37	62	44	66
90	39	68	46	73
100	40	73	49	79
110	42	78	51	86
120	43	83	53	91
130	44	88	55	97
140	46	92	57	103
150	47	96	59	108
160	48	101	60	113
170	48	104	61	118
180	49	108	63	123
190	50	112	64	127
200	51	115	65	132
220	52	121	67	140
240	53	127	69	148
260	54	133	70	155
280	54	138	72	162
300	55	142	73	168
320	56	147	74	175
340	56	151	75	180
360	57	154	76	186
380	57	158	77	191
400	58	161	77	196
420	58	165	78	201
440	59	168	79	205
460	59	170	79	209
480	59	173	80	213
500	60	176	81	217
525	60	179	81	222
550	60	181	82	226
575	61	184	82	230
600	61	186	83	234
650	61	191	84	241
700	62	195	84	248
750	62	199	85	254
800	62	199	86	260
900	62	202	87	269
1000	63	208	88	278
2000	65	213	92	322

▲

Minimum
Number of Charts Recommended

IV. Sample Size Calculations

The number of charts you will need to select depends on the number of people in your diabetes registry. Table 1 on the previous page outlines the number of charts you will need to audit to be reasonably sure (90% confident) that a 10% difference noted from a previous or subsequent audit is a real change and not just due to chance. If, for example, your facility has 1000 people with diabetes, you will need to audit a total of 63 charts (see Table 1).

The registry will often include patients who are not considered active patients of the clinic and thus do not need to be audited. These charts should be identified early in the audit process and excluded. Table 2 outlines the charts which are to be included and excluded.

Table 2 Patients to Include and Exclude in the Chart Audit

Include patients who:

- Attend regular clinics or diabetes clinics.
- Refuse care or have special motivational problems (e.g., alcoholism).
- Are not attending clinic, but you do not know if they have moved or have found another source of care.

Exclude patients who:

- Receive primarily referral or contract care, paid by IHS
- Have arranged other MD care, paid with non-IHS monies.
- Receive their primary care at another Indian health care facility.
- Live in a jail, and receive care there.
- Live in a nursing home, and receive care there.
- Attend and receive care at an off-site dialysis unit.
- Have gestational diabetes.
- Have impaired glucose tolerance only.
- Have moved (i.e., documented change of residence outside the service area).
- Cannot be contacted, documented as 3 or more tries in 12 months.
- Have died.

Keep in mind that unless your diabetes registry is frequently revised and updated, up to 10% of the people in the diabetes registry may not qualify to be included in the audit. To make sure you have an adequate sample at the end of the audit, **increase the chart sample by at least 10%.** In the example of 63 charts used above, this would mean an additional 6 charts, or a total of 69, would need to be pulled for the audit.

V. Chart Selection

The systematic random sampling technique will provide the best representative sample for audit. This is done in the following fashion: Suppose you need to select 69 charts from a registry list of 1000 patients. First, divide 1000 by 69, which yields the number 14.4. You now know that you must select one chart out of fourteen. However, don't automatically start with the first person! Use any method of random chance to determine which one of the first 14 people on the list should be selected. Use your imagination .... Number 14 pieces of paper with 1 through 14 and have someone draw one, or simply ask someone to pick a number between 1 and 14. Then use that number to select your first name for chart audit. Proceed through the entire list, selecting every 14th person on the list. **Please note that it is important to track down the charts which are missing from Medical Records as these belong to patients who are likely to have been seen recently and have high compliance with the Standards of Care.**

VI. Completing the Audit Form

Using the instructions that follow, review the medical record to see if each of the indicators are satisfied. If you cannot find a result in the chart, remember the dictum,

"If it is not documented, it did not happen."

Finally, please remember that all medical records are confidential documents and need to be handled accordingly.

VII. QUALITY ASSESSMENT OF DIABETES CARE, FY98 ITEM DESCRIPTION

For the purposes of this chart review, a **VISIT** is defined as any *primary care* visit, including ER and walk-in clinic visits. Do not include dental, eye care, patient education, surgery clinics, etc.

DEMOGRAPHIC DATA

AUDIT DATE, CHART NUMBER, DATE OF BIRTH, SEX: Self-explanatory.

AREA, SERVICE UNIT and FACILITY codes - use the 2-digit official IHS codes. You do not need to enter a Facility code unless you split your service unit into smaller components for the audit. If you do split your service unit, make sure you use the correct sample size for each component.

FACILITY NAME: Enter facility name or abbreviation.

 # OF PTS IN DIABETES REGISTRY: Enter the number of active patients in your diabetes registry. [**Very important item!** Please take care to assure accuracy].

DATE of Diabetes Diagnosis: If only the year of dx is stated, enter "07/01" of that year. If only the month and year are stated, enter the 15th of that month. (Examples: "1992" becomes "07/01/92", "11/86" becomes "11/15/86"). Leave blank if date is unknown.

TOBACCO USE: Current status of tobacco use taken from the health summary, problem list or flow sheet: (1) Yes, uses tobacco, (2) No, has never used tobacco, (3) Past use of tobacco, or (4) Undocumented.

Referred for cessation counseling? [to be completed *only* if currently uses tobacco]. (1) Yes, if provider documents cessation counseling or referral for cessation counseling during the past 12 mo, (2) No, if no cessation attempts in past year, or (3) Refused, if documented that patient declines/refuses cessation counseling efforts.

VITAL STATISTICS

HEIGHT: Enter height in inches, or in feet and inches.

LAST RECORDED WT: Record in pounds. If pregnant, use last pre-pregnancy weight. [A note to re-confirm the value appears on data entry screen if the weight is <60 lbs or >600 lbs.]

HTN documented (DX or RX): (1) Yes, hypertension diagnosis is on the problem list, visit assessment, or hypertensive medication is prescribed. (2) No documented hypertension diagnosis or prescription.

Last 3 BLOOD PRESSURES: Record the last 3 blood pressures **obtained within the last 12 months.** [If a value falls outside of the expected range for an ambulatory visit (e.g., >240 systolic or >140 diastolic) it will not be accepted during data entry. A cautionary note to confirm the level appears if systolic BP is >210 or diastolic BP is >130].

EXAMINATIONS (in past year)

FOOT EXAM: Exam must include evaluation of sensation and vascular status.

EYE EXAM: Exam must include a dilated eye exam or fundus photograph.

DENTAL EXAM: Must include examination of the gingiva and mucosal surfaces. Dental records may be kept separate from medical records at your facility.

EDUCATION (past year) From flow sheets, progress notes, PHN referral or consults.

DIET INSTRUCTION: Note any mention of diet instruction in the past year and code by provider type: (1) Registered dietitian, (2) Non-R.D., (3) Both R.D. and non-R.D., or (4) None. If it is documented that the patient refused diet counseling, select (5) Refused.

EXERCISE INSTRUCTION: Note any mention of exercise instruction in the past year.

Any GENERAL DM EDUCATION*:* Note any recorded patient education in the past year on any topic(s) related to diabetes, **other than diet or exercise.**

TREATMENT (at time of audit)

DM THERAPY: Current treatment consists of (select as many as apply): (1) Diet & Exercise *Alone*, (2) Insulin, (3) Sulfonylurea, (4) Metformin (Glucophage®), (5) Acarbose (Precose®), (6) Troglitazone (Rezulin®), (9) Refuses therapy, or unknown.

ACE INHIBITOR* use: (1) Currently uses (is prescribed) an ACE inhibitor, (2) does not currently use ACE inhibitor, or (3) Undetermined.

* Examples of angiotensin converting enzyme (ACE) inhibitor drugs include captopril (Captoten), enalapril (Vasotec), lisinopril (Prinivil, Zestril), fosinopril (Monopril), benazepril (Lotensin), quinapril (Accupril) and ramipril (Altace). If unsure, check with your pharmacist regarding the ACE inhibitors used at your facility.

IMMUNIZATIONS

FLU VACCINE past year: (1) Yes, if administered in the past year. If the chart audit is conducted between September and December, give credit for an immunization administered during the previous flu season.

PNEUMOVAX ever: Self-explanatory.

Td in past 10 years: Self-explanatory.

TB STATUS

PPD Status: Last PPD skin test result was: (1) Positive, (2) Negative, (3) Refused, or (4) Unknown.

If PPD Pos, is INH Tx Complete: (1) Yes, if the patient has documentation of at least 6 months of prophylactic INH therapy or at least 12 months of multiple drug therapy documented for active TB. (2) No, if patient has not completed therapy. Include individuals for whom INH therapy was contraindicated. (3) Refused, if the patient declined therapy, or (4) Unknown treatment status.

If PPD Neg, Date of last negative PPD: Self-explanatory.

DATE OF LAST EKG: Self-explanatory. Leave blank if no EKG on chart.

LABORATORY DATA

Hemoglobin A1c: Record the most recent HbA_{1c} value and the date it was drawn.
Then record the next most recent HbA_{1c} value and the date it was drawn.

or, (if no HbA_{1c} was done in the past 12 mo)...

Last 3 BLOOD SUGARS: Record the last 3 blood sugars **obtained in the past year.**
It is not necessary to record blood sugars if one or more HbA1c values have been recorded.

CREATININE:
TOTAL CHOLESTEROL:
LDL CHOLESTEROL:
TRIGLYCERIDES:

For each serum test, enter most recent value in the past year. If the last value is more than 12 months old, do not record it. **For patients on renal dialysis, enter a creatinine value of "99.9".**

URINALYSIS: Self-explanatory -- must have been obtained in the past 12 months**.**

PROTEINURIA: (For those who had a urinalysis obtained in the past 12 months only).
Most recent dipstick protein test showed: (1) 1+ (30 mg/dl) or more,
(2) No protein (or trace only).

MICROALBUMINURIA: (For patients without dipstick proteinuria only)
A test for the presence of albumin in the urine was:
(1) Positive, microalbuminuria present, i.e., one of the following criteria are met:
- ≥30 mg albumin/L urine
- urine albumin/creatinine ratio ≥30 mg/g
- albumin excretion rate ≥30 mg/24hrs (>20 μg/min)

(2) Neg, test did not show microalbuminuria, or (3) Not tested or unknown.

MONITORING

Self Monitoring of Blood Glucose documented in chart: (1) Yes, if provider has made note of or assessed SMBG results at least once in the past 4 diabetes visits, (2) No, if no mention of SMBG results in past 4 diabetes visits, or (3) Refused, if SMBG has been recommended to patient but declined.

STAGED DIABETES MANAGEMENT *(**only** for sites where SDM training has occurred)*

Is Patient Participating in Staged Diabetes Management?

(1) Yes, SDM stage, phase, or goals documented at least once in the last 4 diabetes visits, (2) No, there is no SDM documentation in the past 4 diabetes visits, or (3) Unable to determine (include pts. with no SDM documentation, but fewer than 4 diabetes visits).

LOCAL OPTION QUESTION

A **LOCAL OPTION QUESTION**, if present, will be found at the end of the audit.
Read the question carefully and then select the appropriate response.
(For more information on the Local Option Question, see Section VIII).

VIII. Local Option Question

Areas and facilities have the ability to formulate their own supplemental audit question, if desired. This permits each Area to analyze an additional aspect of diabetes care that may be of special interest, or to "test run" a question that might be a useful future addition to the national IHS diabetes audit. The procedure for developing and incorporating a local option question is explained below. Although separate facilities within an Area may not necessarily be required to use the same question, it is highly recommended that this be discussed and coordinated with your Area Diabetes Consultant.

The first step is to develop a question that can be answered through a review of individual medical charts. The question can relate to demographics (Indian blood quantum, location of residence, etc), a particular aspect of care (examinations, lab studies, other medications, and so forth), a physiologic parameter (pulse rate, for example), a clinic related parameter (such as the number of visits in the preceding month or year), or any other auditable element of interest.

The local option question needs to be posed in multiple choice format. The choices may be as simple as 'Yes' or 'No', or may contain many possible answers. The accompanying audit software permits up to 9 choices, although for ease of answering and reporting it is usually best to limit choices to no more than 4 or 5. To facilitate data entry, each choice needs to have an assigned number, in a manner similar to the other elements of the audit.

After the question and response choices are formulated, print or type them onto the lower right portion of the audit form if there is room, otherwise on a separate page that can be stapled to the audit form. Be sure to precede each choice with its associated one-digit number, just like the other items on the audit form.

Data entry for a local option question is easy. A special field is provided at the very end of the audit, and is clearly identified on the data entry screen (“Local”). The selected responses can be entered there in the same manner all other data is entered.

Modifying the report file:

In order for the local option question to appear in the final printed report, the question must be inserted into the report file that Epi Info uses to generate the report. The report file is named AUDIT98.RPT. To modify this file, first place all the AUDIT98 files into Epi Info (if necessary, refer to section IX for directions). Then use the following steps to place the question into the report file:

1. From Epi's main menu, press **<F3>** (Open). An "Edit a file" box will appear and prompt you for a **N**ame. Type **AUDIT98.RPT** [ENTER]. The AUDIT98.RPT file will appear on the screen.

2. Press the <Page Down> key 9-10 times, or use the down-arrow (↓) key to get to the last part of the AUDIT98.RPT file that pertains to the local option question. You will see the line *#USES LOCAL. Delete the asterisk (*) from the beginning of the line.

3. Immediately below the #USES LOCAL line, substitute your question for the sample question, being careful not to go beyond mid-page. Use multiple lines if necessary. Delete the asterisk (*) from the beginning of each line that you use.

4. Type in each of the possible responses, again substituting for the sample answers. Be sure to delete the initial asterisk (*), but only on the lines that are actually used. Lines with an initial asterisk remain "invisible" when printing the report (If you wish, any extra lines may be deleted by placing the cursor anywhere on the line and pressing **<CTRL>-y**).

5. Check the alignment of the bracketed numbers to the right of the responses. Add or delete spaces until the first brackets of the bracketed numbers line up in a vertical column.

6. Press <**F9**> to save these changes, then <**F10**> to return to the main menu.
The report file has now been modified to give the results of your local option question.
Enter your audit data if you have not already done so (refer to section IX), "clean" your data (optional, see section X) and then print your customized summary report(s) (sections XI and XII).

IX. INSTRUCTIONS FOR AUDIT98 DATA ENTRY

These instructions assume your computer uses the A: drive to receive your audit diskette, and that Epi lnfo is loaded onto hard drive C: in a subdirectory named EPI6. If this is not the case, you will need to modify the instructions accordingly. For example, if your diskette goes into a B: drive, substitute "**B:**" for "**A:**" when typing the commands below.

1. Insert the AUDIT98 diskette into your A: drive. Copy all the audit files into the Epi Info program by typing from any DOS prompt: **COPY A:*.* C:\EPI6** <ENTER>

2. Start the Epi Info program in the usual way (from your computer's main menu or by going to the \EPI6 subdirectory and then typing **EPI6**).

3. When the Epi Info menu appears, select **P**rograms, then "E**N**TER data". When the program asks for the ____.REC file, type: **AUDIT98** <ENTER> followed by **1** <ENTER> and then **Y** <ENTER>. The data entry form will then appear on the screen.

4. Enter your data into the program. You can set the "NumLock" button on your keyboard to "on", and enter most of the data using the keyboard pad. Note several features:

   Automatic jumps: Where appropriate, the computer will automatically skip certain sections. For instance, it skips "Referred for cessaton counseling?" if pt. is not a current tobacco user.

   Must Enter: Certain items, such as audit date, service unit, number of active patients in the registry, and patient's gender are required by the audit program. You must enter data for these items. However, after the initial record, most of these items will be automatically entered for you, and only need to be re-entered if their value changes.

   Automatic calculations: The program automatically calculates several items for you. For example, you can enter the height in feet and inches and the computer will calculate the total height in inches. If you already have the height in inches, you may enter that under "inches". Other items automatically calculated include patient's age, BMI, mean diastolic and mean systolic blood pressure.

   Data entry messages: The program will give you an error message if you enter a value that is outside of the expected range for that field. If your entry is clearly incorrect it may erase what you entered and require you to re-enter the value. At other times it merely asks you to double check to be sure that your entry was what you intended.

5. MAKE A BACKUP COPY of your data!!! It's a good idea to make a backup copy of your audit file **every time** you finish entering data. This can save you considerable time and grief if something should happen to your original data. You can easily make a backup by copying your data back onto the same diskette that contained the original AUDIT98 programs. To do this, get to any DOS prompt (such as **C:\>**) and type the following command:

   COPY C:\EPI6\AUDIT98.REC A:\<filename>.REC

   You can name <filename> anything you wish (up to 8 characters). If you call it "AUDIT98.REC", the program will write your data over the empty data file on the diskette, which is fine.

X."CLEANING" YOUR DATA

An optional program, CLEAN98, is available if you wish to scan your data for possible inadvertent data entry errors. The main AUDIT98 program is designed to identify and permit correction of many errors at the time of data entry, but nevertheless some may occur. The CLEAN98 program creates a number of error-checking tables or lists. It begins by producing frequency tables on items that should have only a single answer per facility (such as the number of active patients on the diabetes registry, the name of the facility, or the codes for the Area and Service Unit). It also produces a listing by chart number of records having values that are atypical or outside of the usual range for a given item. These listings may or may not represent actual errors, but should be reviewed for accuracy.

To "clean" your data, go to Epi Info's main menu and select **A**NALYSIS from the listing of **P**rograms. Put your data file into the **A**NALYSIS program by typing at the EPI> prompt:

READ AUDIT98.REC <ENTER>

Next, turn on your printer, then press the <**F5**> key to send output to the printer [Note: you can skip this step if you wish and have the results appear only on screen, although many people find it easier to have a printout in hand].

Now, type at the EPI> prompt: **RUN CLEAN98** <ENTER>

XI. PRINTING A SUMMARY REPORT

You will probably want to print a report after entering and (optionally) cleaning your data.

Before printing, if you entered data on a Local Option Question, you should first modify the AUDIT98.RPT file so that the results of your local question appear on the report -- refer to the bottom section of pg 12.

To print a report, go to Epi Info's main menu and select **A**NALYSIS from the listing of **P**rograms. Load your data file into the **A**NALYSIS program by typing:

READ AUDIT98.REC <ENTER> [Typing the extension ".REC" is optional here.]

Next turn on your printer, then press the **<F5>** key. A message should appear on the screen that says "ROUTE PRINTER", meaning that the output from the **A**NALYSIS program will be sent to your printer (if you wish to have the output appear only on your computer screen, skip this step).

Finally, type:

RUN AUDIT98.PGM <ENTER> [Typing the extension ".PGM" is optional here.]

The computer will immediately begin to analyze your data, and then will print the report (or simply display it on your screen, if you did not push **<F5>**).

XII. THE RENAL PRESERVATION REPORT

A supplemental audit report, referred to as the Renal Preservation Report, is available to you. It provides more detail regarding diabetic kidney disease screening and treatment efforts at your facility.

To print the Renal Preservation Report, go to Epi Info's main menu and select **A**NALYSIS from the list of **P**rograms. (It is important to do this, even if you were already in **A**NALYSIS, as it "resets" certain variables).

At the EPI> prompt, type: **READ AUDIT98** <ENTER>

Press **<F5>** if you wish the output to go to the printer, or skip this step if you want it to go to your computer screen only.

At the next EPI> prompt, type: **RUN RENAL98** <ENTER>

The Renal Preservation Report will now be printed (or will appear only on your screen, if you did not push **<F5>**).